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PAINT ROLLER AND METHOD OF MAKING SAME

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This invention relates to paint rollers and more particularly comprises a new and improved disposable paint roller and a method of making the same.

In the manufacture of paint rollers it is essential that the outer fabric used as the paint applicator be perfectly smooth upon its supporting core if the paint roller is to serve satisfactorily in applying paint to a surface. If any bumps or ridges are formed beneath the fabric their images will be cast in the surface being painted and consequently the painting will not be satisfactory.

One important object of this invention is to provide a paint roller which is free of bumps and ridges beneath the fabric paint applicating layer.

Another important object of this invention is to provide a method of manufacturing paint rollers very inexpensively so that the product in turn may truly be disposable.

In accordance with the prior art an adhesive coating is applied to the core of the roller and subsequently a sleeve made of a high pile fabric is slipped over the core and held in place by the adhesive. Difficulties arise in this mode of manufacture due to the tendency to use either too little or too much adhesive between the fabric and the core. If too little adhesive is used the fabric will not properly adhere to the core and may shift during use, and if too much adhesive is used, the adhesive will tend to form ridges and bumps beneath the fabric which results in a roller having other than a smooth surface for the application of paint.

Yet another important object of this invention is to provide means for uniformly applying an adhesive coating of the desired thickness on the core of a paint roller, which will secure the fabric to the core.

To accomplish these and other objects, the paint roller of this invention includes a multi-ply cardboard tube as the core of the roller. A paper carrier is helically wound about the tube and carries a coating of adhesive on its outer surface, which has been run through a comb to remove surplus adhesive from the carrier and spread the glue evenly on the carrier. A high pile fabric is helically wound on the carrier and is adhered to the tube by the adhesive.

In accordance with the method of this invention, the roller is made by continuously winding multiple layers of cardboard ribbon onto a mandrel to form a continuous cardboard roll. A ribbon of paper is helically wound over the tube, which paper serves as an adhesive carrier. The adhesive is applied to the paper ribbon before it is wound on the tube, and the coating of adhesive on the lower surface of the paper serves to secure the paper to the tube, and the coating on the upper surface of the paper serves to secure the pile fabric to the tube. Subsequently the pile fabric cut in ribbon form is helically wound on the carrier.

These and other objects and features of this invention along with its incident advantages will be better understood and appreciated from the following detailed description of one embodiment thereof, selected for purposes of illustration and shown in the accompanying drawing, in which:

FIG. 1 is a perspective view of a paint roller constructed in accordance with this invention;

FIG. 2 is a cross-sectional view taken along the section line 2—2 of FIG. 1;

FIG. 3 is a plan view, partially diagrammatic, showing the method of making the roller shown in FIGS. 1 and 2;

FIG. 4 is a diagrammatic view showing the application of adhesive to the carrier in accordance with the method of FIG. 3;

FIG. 5 is a diagrammatic view showing the application of adhesive to one of the cardboard plies in accordance with the method of FIG. 3; and

FIG. 6 is a cross-sectional view taken along the corresponding section line in FIG. 4.

The paint roller shown in FIGS. 1 and 2 is composed of a core **10**, a carrier **12** and a paint applicator in the form of a cover **14**. In order for the roller to be truly disposable, it must necessarily be made of inexpensive materials. The roller shown in FIGS. 1 and 2 is in fact disposable. In the preferred embodiment shown, the core **10** is a conventional triple-ply cardboard tube having a total wall thickness of approximately 1/16" and having an outer diameter of approximately 1⅝". The carrier **12** is glued to the outer surface **16** of the core tube **10** by a film of adhesive **18**. Preferably the carrier **12** is made of a kraft-type paper in the form of a ribbon spirally wound about the core as a continuous process. The carrier **12** on its outer surface **20** carries an adhesive coating **22** which is preferably made up of a series of ribs and channels as shown in FIG. 6. The advantage of this configuration for the adhesive coating **22** will be dscribed in detail below. The high pile fabric **14** which serves as the paint carrier and applicator, like the paper carrier **12**, is applied as a continuous ribbon spirally wound about the tube onto the adhesive layer **22**. As the roller is intended to be disposable, the fabric covering layer **14** may be an inexpensive material such as a high pile rayon fabric.

It is essential that no ridges or bumps be formed on the core beneath the fabric covering layer **14** which may project into the fabric layer and distort its otherwise smooth base surface. It will be appreciated that if bumps or ridges of any significant size are formed between the carrier **12** and the fabric cover **14**, they will impair the smooth surface of the fabric cover, and when the roll is rolled over a surface during the application of paint or other decorative coating, a different pressure will be applied at the location of the bumps or ridges to the coating than at the remaining areas of the roller. Consequently, an impression or image will be cast into the decorative coating applied by the roller, which will render the job unsatisfactory. In order to achieve a smooth surface for supporting the fabric **14**, it is particularly essential that the adhesive coating **22** on the carrier **12** which lies immediately beneath the fabric be free of all pronounced ridges and bumps. Consequently, an even distribution of the coating **22** is essential. In order to do this, the coating **22** is not applied directly to the core **10** but rather is applied in a special manner to carrier **12** as is described below in connection with the method of manufacturing the roller.

In FIG. 3 a mandrel **24** is suggested about which the various layers of the paint roller are wound. On the left end of the drawing, three ribbons of cardboard are shown being helically wound about the mandrel to form the triple-ply cardboard roller that serves as the core of the device. As is conventional in the manufacture of triple-ply rollers, the inner ply formed by the cardboard ribbon **26** does not carry any adhesive. However, the inner (lower) surface of the second ply forming ribbon **28** is precoated with an adhesive material as is the inner (upper) surface of the third ply of ribbon **30**.

In FIG. 5 a typical installation for the application adhesive to the cardboard ribbon is shown. In that figure, a spindle **32** supports a large roll **34** of cardboard ribbon. The ribbon runs between a pair of guide rollers